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only

34. (Amended) An interposer assembly as in claim 33 wherein each contact point is rounded along the length of a corner.

Marked up copies of amended claims 3, 4, 7, 9, 18-19, 21-26, 28-29 and 34 are attached.

Cancel claims 35-37 ✓

REMARKS

Amendments to the Claims:

The amendments to the claims are made to delete unnecessary limitations and improve the form of the claims. These amendments are made voluntarily, and are not made in response to a statutory rejection of the claims.

Claim 35-37 have been canceled in view of applicant's prior filed election to prosecute claims 1-34.

Response to Restriction Requirement:

The restriction requirement indicates claims 1-23 and 29-34 are drawn to a first invention; claims 24-28 are drawn to a second invention, the inventions are distinct and accordingly restriction is proper.

Applicant submits that all claims are directed to a single invention and requests reconsideration and withdrawal of the restriction requirement.

The Claims:

The application presents three independent claims, Nos. 1, 14 and 24. Independent claims 1 and 14 are directed to an interposer assembly including as components an insulated plate and a plurality of metal contacts located in the plate for establishing electrical connections with pads above and below the plate. The metal contacts have spaced contact points which form

redundant connections with the pads.

Independent claim 24 is directed to a metal spring contact for forming redundant electrical connections with a contact pad. The contact includes a pair of spaced contact points which form redundant pressure connections with a pad.

Dependent claim 29 is directed to an interposer assembly including an insulating plate and a plurality of metal contacts where each metal contact includes:

"...a first spring contact as in claim 24 and a second spring contact as in claim 24." (Emphasis added)

All claims 1-34 are directed to electrical connectors with spring contacts having a beam and a pair of spaced contact points as in claim 24.

The claimed inventions have utility as electrical connectors, that is for forming electrical connections between the recited spring contacts and contact pads.

Restriction Requirement

The restriction requirement characterizes claims 1-23 and 29-34 as being directed to a combination and claims 24-28 as directed to a subcombination. Applicant submits this characterization is inaccurate as claims 29-34 recite first and second spring contacts "as in claim 24" and, accordingly, depend upon claim 24.

Claims 1-23 are directed to combinations which include spring contacts which are related to the claim 24 spring contacts. Accordingly, the characterization of claims 1-23 and 29-34 as a "combination" and the characterization of claims 24-28 as a "subcombination" is inaccurate. The two groups of claims

are not distinct inventions, but rather are all directed to electrical connectors with the spring contacts having pairs of spaced contact points for forming redundant pressure electrical connections.

The last sentence of page 2 of the restriction requirement incorrectly states that the "subcombination" (claims 24-28) has utility as a "non-electrical spacer." This statement is clearly incorrect. No such utility is claimed, although the claimed plates are insulators. This inherent property of the plates is irrelevant to the restriction requirement.

The restriction requirement indicates claims 1-23 and 29-34 are classified in class 428, subclass 591 and claims 24-28 are classified in class 174, subclass 69.

Applicant submits that these classifications are inappropriate and that all claims are properly classified in class 439, Electrical Connectors. Class 439 is:

"... the generic class for a device constituting an electrically conducting contact between conductors of electricity; wherein the joint is of a type which may be readily made and broken, repeatedly by attachment and detachment of contact supporting structure to each conductor." (Class 39, Section I - Class Definition, paragraph 2).

Applicant suggests claims 1-23, directed to an interposer assembly, are properly classified in 439/66. Attention is directed to U.S. Patent No. 6,290,507 which discloses and claims an interposer assembly related to the assembly of claim 1 and is classified in class 439/66. A copy of the '507 patent is

enclosed with applicant's Supplemental Information Disclosure Statement filed concurrently herewith.

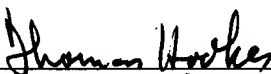
Applicant submits that claims 24-34 are properly classified in class 439/387 - a contact comprising a cutter.

Reconsideration and withdrawal of the restriction requirement is solicited for the foregoing reasons. The requirement incorrectly groups the claims. Claims 1-23 are directed to an interposer assembly and claims 24-28 are directed to a spring contact, and claims 29-34 are directed to an interposer assembly with a spring contact per claim 24. These claims are all directed to a common invention and are properly classified in class 439.

The restriction requirement advises that applicant must elect one of identified inventions I and II. In response to this requirement, applicant elects identified invention II with traverse.

Respectfully submitted,
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BY

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Attorney's Case No.: 8-4710

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Douglas A. Neidich Examiner: David E. Graybill
Serial No: 09/897,332 Art Unit: 2827
Filed: July 2, 2001
Title: Interposer Assembly and Method

Assistant Commissioner for Patents
Washington, D.C. 20231

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COMMUNICATIONS SECTION

MARKED UP COPY - AMENDED CLAIMS

3. (Amended) The assembly as in claim 2 wherein [each] at least one contact point comprises a rounded corner.

4. (Amended) The assembly as in claim 3 wherein each contact is formed from uniform thickness strip stock having a sheared [circumferential] edge, and [each] said at least one contact point is located on a corner of said [circumferential] edge.

7. (Amended) The assembly as in claim 6 wherein each contact point is rounded along the length of [the] said edge [corner].

9. (Amended) The assembly as in claim 7 wherein each contact point comprises a rounded corner and said rounded corners have a [transverse] radius of curvature of about 0.0006 to 0.0010 inches.

18. (Amended) The assembly as in claim [16] 14 wherein [each] at least one contact point comprises a shear-wiped corner of a beam edge.

19. (Amended) The assembly as in claim [18] 17 wherein said strip stock has a thickness of about 0.0017 inch.

21. (Amended) The assembly as in claim [18] 14 wherein each contact point comprises a portion of a contact bent to one side of the remainder of the contact.

22. (Amended) The assembly as in claim [15] 14 wherein said beams are tapered.

23. (Amended) The assembly as in claim [22] 14 wherein said retention legs are tapered.

24. (Amended) A spring contact for forming redundant electrical connections with a contact pad, said spring contact comprising an elongate metal body including a [mounting] first end, a contact end and a resilient beam located between such ends, [the beam extending laterally away from the mounting end to locate the contact end to one side of the mounting end,] said contact end including a pair of contact points spaced across the contact end, wherein movement of a contact pad into engagement with contact points flexes the beam and wipes the contact points along the pad to form redundant pressure electrical connections between the contact and pad.

25. (Amended) The spring contact as in claim 24 wherein [each] one contact point comprises a rounded edge.

26. (Amended) The spring contact as in claim 25 wherein the spring contact is formed from uniform thickness strip stock having a sheared [circumferential] edge, and each contact point is located on a corner of said sheared [circumferential] edge.

28. (Amended) The spring contact as in claim 27 wherein each contact point is rounded along the length of the [edge] corner.

29. (Amended) An interposer assembly for forming redundant electrical connections with contact pads on substrates positioned above and below the assembly, said assembly comprising:

a) an insulating plate having top and bottom sides and a plurality of passages extending through the thickness of the plate; and

b) a plurality of metal contacts, each contact disposed in one of said passages, each metal contact comprising an integral body formed from uniform thickness strip stock and including a first spring contact as in claim 24 and a second spring contact as in claim 24, each metal contact including a central portion joining the [mounting portions] first ends of said spring contacts, the contact portions of said spring contacts facing outwardly of the passage at the top and bottom thereof, the contact portions spaced apart a distance greater than the thickness of the plate when the metal contact is unstressed, wherein the contact points on each contact end form redundant electrical connections with a contact pad on a substrate.

34. (Amended) An interposer assembly as in claim 33 wherein each contact point is rounded along the length of [the edge] a corner.